

OPERATING INSTRUCTIONS AND SERVICE MANUAL

Cleco®

55NAL-1-270-4
55NL-1-724-4
55RNL-2-LS-4-13

COMPLETE TOOL	
MODEL NO.	CODE NO.
55NAL-1-270-4	230270
55NL-1-724-4	220724
55RNL-2-LS-4-13	240389

OPERATING INSTRUCTIONS

55 CLECOMATIC NUTRUNNERS

The 55 Clecomatic nutrunner is designed to operate on 90 psig maximum air pressure but does not depend on controlled air pressure to maintain accurate torque. Accurate torque is achieved by setting the Clecomatic clutch to the desired torque on the application. The tool will shut off automatically at this torque. Releasing the throttle will allow the tool to reset for the next cycle.

CAUTION

If the clutch is adjusted over the maximum power output of the tool, the clutch will not function and the tool will operate like a stall-type tool. Also, if the tool is being operated at its upper torque limits, a drop in air pressure could cause the clutch not to function due to a loss of motor power and the tool will function like a stall-type tool. If the tool stalls the operator must resist the stall torque until he releases the throttle.

Operational check: Grip tool securely and be prepared to counteract stall torque in case clutch is improperly adjusted. THIS IS A HIGH TORQUE TOOL.

CLECOMATIC CLUTCH ADJUSTMENT

Depress the pin, No. 864711, and rotate the adjustment cover, No. 867677, 180 degrees so it lines up with the adjustment slot. With the angle head end of the tool facing outward, away from the operator, use a 1/8" diameter pin to rotate the adjustment nut, No. 867678, clockwise to increase the torque and counterclockwise to decrease the torque. Note: The steel ball, No. 844077, is a positive lock for the adjustment nut and must be in place in a locking slot before the adjusting cover is rotated to the locked position after each clutch adjustment is completed.

METERING VALVE

The metering nut No. 203203, can be adjusted with a hex wrench clockwise to lower the RPM of the tool or counterclockwise to raise the RPM of the tool.

THROTTLE POSITION

The throttle lever or button may be repositioned to accommodate proper location for task and to avoid entrapment. Repositioning of the angle head is done by loosening housing lock nut No. 867521, and lifting the angle head until the spline on the angle head clears the gear case and can be rotated to the position desired. Lower the angle head back into place and tighten housing lock nut.

AIR SUPPLY

For maximum performance, use a 1/2" I.D. air hose no longer than 8' in length. If additional length is required, a 5/8" or larger hose should be connected to the 1/2" hose.

The air hose should be cleared of accumulated dirt and moisture, then one (1) teaspoon of 10W machine oil should be poured into the tool's air inlet before connecting the hose to the tool.

LUBRICATION

An automatic in-line filter-lubricator is recommended as it increases tool life and keeps the tool in sustained operation. The in-line lubricator should be regularly checked and filled with a good grade of 10W machine oil. Proper adjustment of the in-line lubricator is performed by placing a sheet of paper next to the exhaust ports and holding the throttle open approximately 30 seconds. The lubricator is properly set when a light stain of oil collects on the paper. Excessive amounts of oil should be avoided.

Application of the tool should govern how frequently it is greased. It is recommended that the idler gears receive a generous amount of No. 2 Moly grease when tool is disassembled.

STORAGE

In the event that it becomes necessary to store the tool for an extended period of time (overnight, weekend, etc.), it should receive a generous amount of lubrication at that time and again when returned to service. The tool should be stored in a clean and dry environment.

SERVICE INSTRUCTIONS

DISASSEMBLY — GENERAL—Stall Tools

To disassemble the tool, clamp the spindle housing adaptor lightly in a soft-jawed vise with the tool in a horizontal position. Using a suitable wrench, unscrew the motor housing. Using a suitable wrench, unscrew the spindle housing (left hand threads). Be careful not to lose any gear train components. Using a soft-faced mallet, tap the front of the motor housing to remove the motor unit.

Automatic Shut-Off Tools

To disassemble the tool, clamp the flats of the clutch housing in a soft-jawed vise and unscrew the motor housing. Clamp the spindle housing adaptor in the vise and unscrew the spindle housing (left hand threads). Using a suitable wrench, unscrew the clutch housing from the spindle housing adaptor. Be careful not to lose any gear train components. Tap the front of the motor housing with a soft-faced mallet to remove the motor unit.

SUBASSEMBLY DISASSEMBLY

Gear Train

Clamp spindle housing adaptor, in vise and uncrew spindle housing (left hand threads). Remove spider 869905, out rear of spindle housing. Remove bearing retainer 869877 and bearing retainer ring 882115, to release spindle. Clamp clutch housing in vise (if tool is equipped with clutch) and unscrew spindle housing adaptor 203696. 1st reduction spider 861485, will fall out rear. The 2nd reduction spider 203698, can now be removed from bearing 865198. The bearing can also be removed for inspection. By driving the idler gear pins out of the rear of the spiders, the idler gears can be removed from the spider pockets.

Clecomatic Clutch

Remove the adjustment cover by sliding it off the back of the clutch housing. Be careful not to lose the steel ball, No. 844077, that will drop out at this time. Using the slots provided on the rear face of the adjusting nut, No. 867678, unscrew it from the clutch housing. The torque spring bearing, No. 867683, spring plate, No. 867669, and torque spring, No. 869626, will come out through the rear of the clutch housing. With a soft mallet, tap on the gear end of the clutch to remove it from the clutch housing. By removing the retainer ring, No. 847022, the drive shaft washer, No. 867666, trip sleeve spring, No. 202056, trip sleeve, No. 867670 and two (2) steel balls, No. 842161, can be removed from the drive shaft. Remove the clutch cam bearing, No. 619377, with a suitable puller. Using a sharp instrument, remove the spiral ring, No. 865436. This will allow the clutch cam, No. 867676, three (3) steel balls, No. 842161, trip plunger spring, No. 867671 and trip plunger, No. 867668, to be removed through the front of the drive shaft. To remove the six (6) steel balls, No. 844265, slide the ball retainer, No. 867673, off over the rear of the drive shaft.

Motor Unit

Remove bearing cap. Clamp the cylinder lightly in the vise with the gear end of the rotor up. Note: The rotor pinion, No. 867524, used on the -4 and -6 models should be removed at this time. Drive the rotor out of the front rotor bearing, No. 619377. Be careful not to damage the rotor. The front bearing plate, No. 867536, cylinder, and rotor blades, can now be removed from the rotor. Clamp the body of the rotor in the vise with the rear bearing plate up. After unscrewing the bearing lock nut, No. 865352, the rotor can be driven out of the rear rotor bearing.

REASSEMBLY

The tool is reassembled in the reverse order of disassembly. Clean all parts thoroughly in a solvent and inspect for damage or wear. Check all bearings for wear which can be detected by excessive end play and/or roughness which

would indicate a brinelled condition. The rotor blades should be replaced at every repair cycle or if they measure less than 1/4" at either end. All gear teeth, bearings, and pins should receive a close inspection and be replaced if necessary.

Motor Reassembly

To assemble the motor, install the rear rotor bearing into the rear bearing plate. Make sure the outer bearing race is firmly seated in the bearing plate. Clamp the rotor body lightly in the vise with the threaded end up and slip the rear bearing plate assembly onto the rotor shaft far enough for the bearing lock nut to start. Tighten the lock nut until there is approximately .0015" clearance between the rotor and bearing plate. The outer bearing race should be firmly seated and the rotor bumped forward when checking this clearance. Pack both rotor bearings with a good grade of No. 2 Moly grease after assembly of the motor unit. Note: During reassembly of the complete tool, it is important that the motor be free. After the tool is completely assembled, the right angle square drive spindle should turn freely using a small hand wrench. If the spindle does not turn freely, the motor should be checked for proper spacing. Do not run the tool until the spindle turns freely. Failure to do this could result in damage to motor components.

During reassembly of the gear train and head, all of the various gears and bearings should receive a generous amount of No. 2 Moly grease.

The Clecomatic clutch is assembled in the reverse order of disassembly. The torque spring bearing, No. 867683, must be assembled so the solid side of the ball separator is facing toward the torque spring.

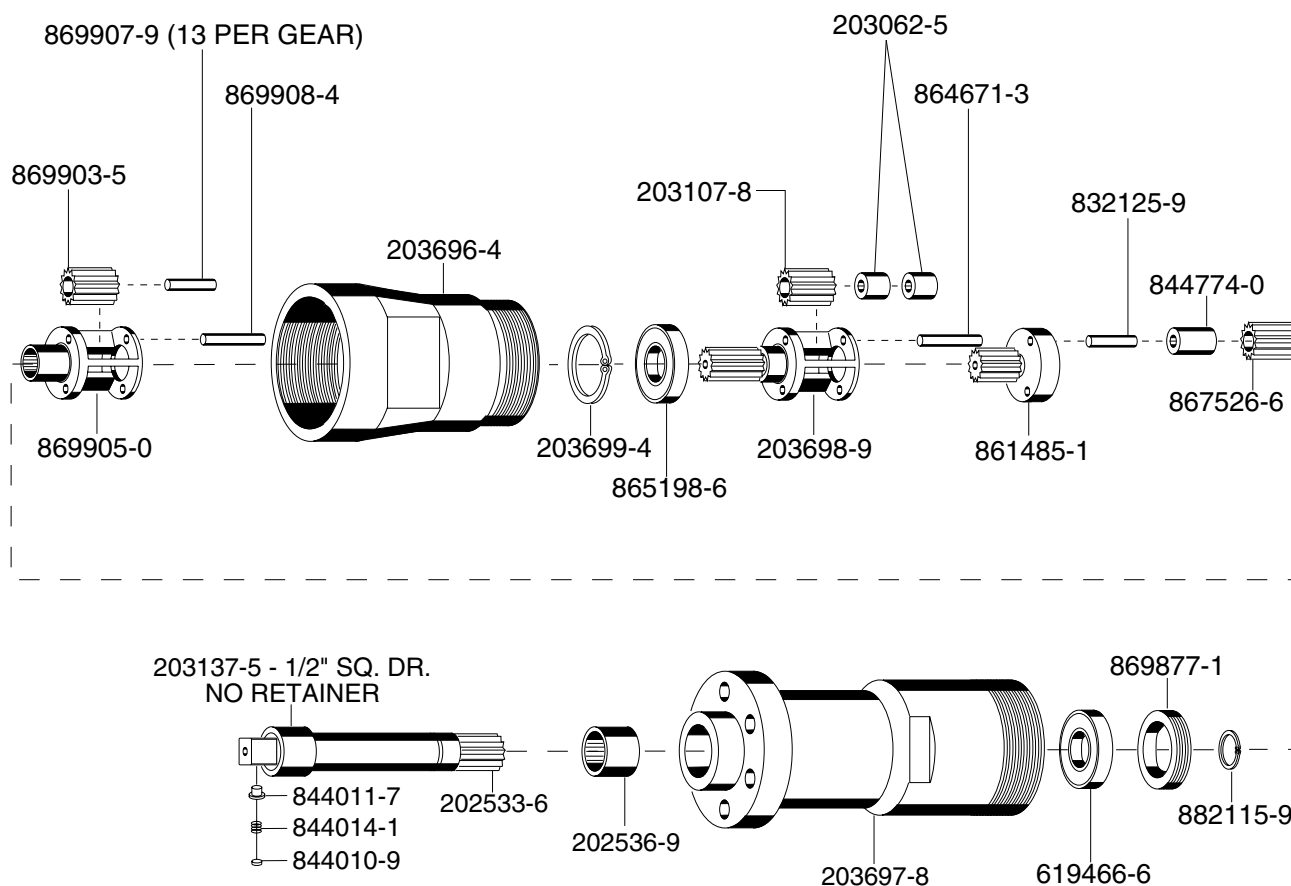
During reassembly on the automatic shut-off tools, the tip rod must be ground flush (+0 to -1/32) with the hex end of the rotor. Hold the motor firmly in the housing at the time the tip rod is being sized to length.

Pour a few drops of 10W machine oil into the air inlet after complete assembly to insure immediate lubrication of all motor parts when air is applied.

SAFETY CHECK

After repair or replacement of parts, tools equipped with an automatic shut-off device should be tested to verify that they are functioning properly.

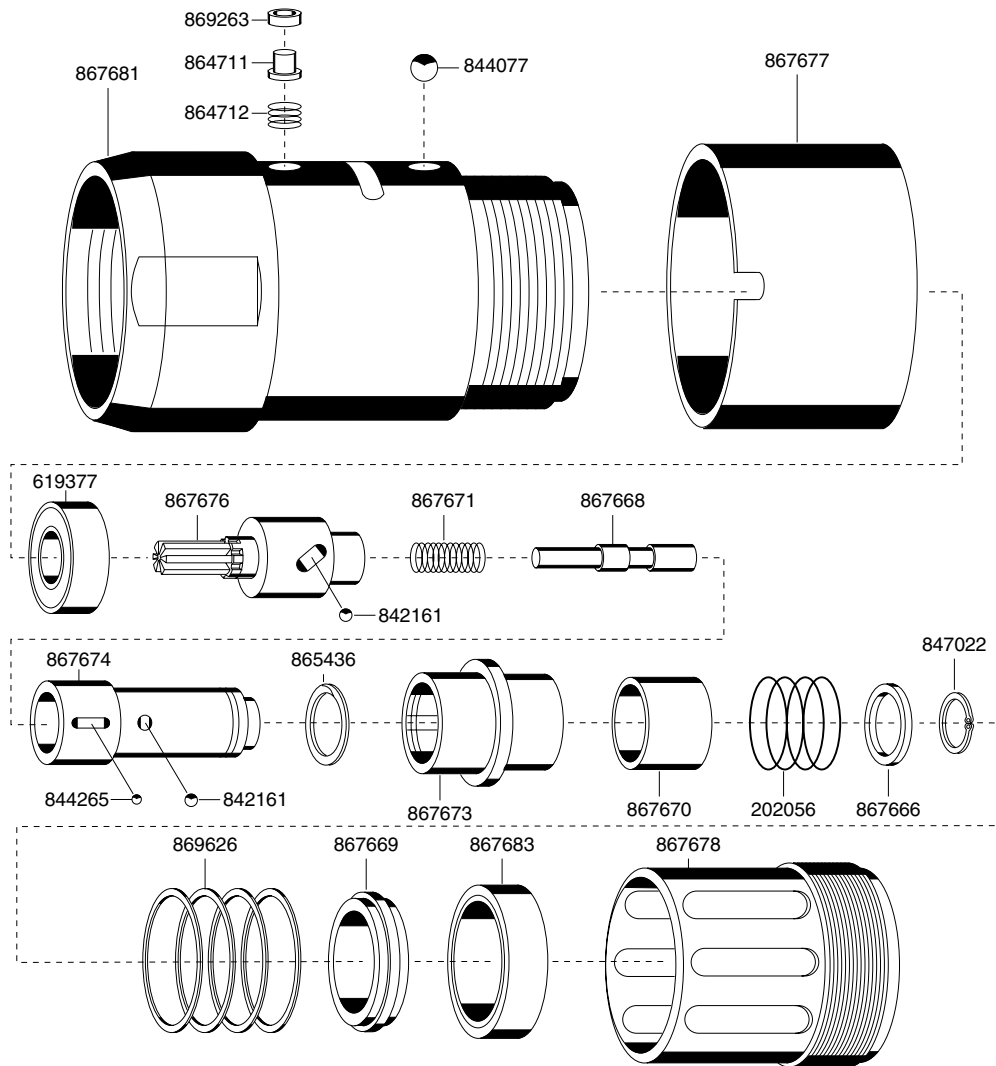
NO. 55NAL-1 & 55NL-1 NUTRUNNER GEAR TRAINS



PARTS LIST — GEAR TRAIN

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
202533	Spindle (incl. 844010, 844011 & 844014)	1	844014	Lock Pin Spring	1
202536	Spindle Needle Bearing	1	844774	1st Red. Idler Gear Bearing	3
203062	2nd Red. Idler Gear Bearing	6	861485	1st Red. Spider-19T (incl. 832125)	1
203107	2nd Red. Idler Gear-15T (incl. 203062)	3	864671	2nd Red. Idler Gear Pin	3
203137	Spindle	1	865198	2nd Red. Spider Ball Bearing	1
203696	Spindle Housing Adaptor	1	867526	1st Red. Idler Gear Bearing-21T (incl. 844774)	3
203697	Spindle Housing	1	869877	Spindle Ball Bearing Retainer Ring	1
203698	2nd Red. Spider-19T	1	869903	3rd Red. Idler Gear-15T	3
203699	Retainer Ring	1	869905	3rd Red. Spider	1
619466	Spindle Ball Bearing	1	869907	3rd Red. Needle Roller	39
832125	1st Red. Gear Pin	3	869908	3rd Red. Idler Gear Pin	3
844010	Spring Retainer	1	882115	Spindle Retainer Ring	1
844011	Socket Lock Pin	1			

NO. 55 NAL-1 CLECOMATIC CLUTCH

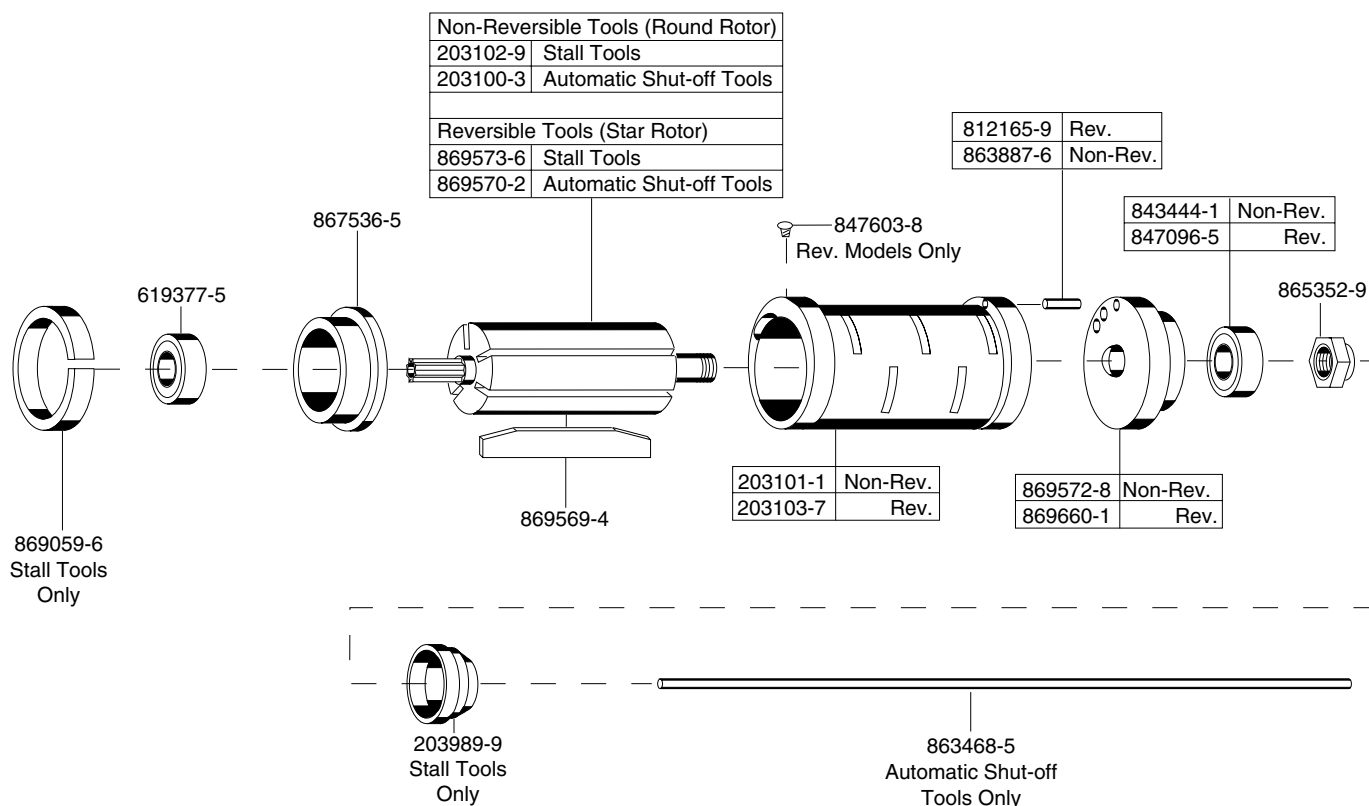


PARTS LIST — CLECOMATIC CLUTCH

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
202056	TRIP SLEEVE SPRING	1	867670	TRIP SLEEVE	1
619377	CLUTCH CAM BEARING	1	867671	TRIP PLUNGER SPRING	1
842161	STEEL BALL 3/16" DIA.	5	867673	BALL RETAINER	1
844077	STEEL BALL 5/16" DIA.	1	867674	DRIVE SHAFT	1
844265	STEEL BALL 1/8" DIA.	6	867676	CLUTCH CAM	1
847022	WASHER RETAINER RING	1	867677	ADJUSTMENT HOLE COVER	1
864711	PIN	1	867678	ADJUSTMENT NUT	1
864712	PIN SPRING	1	867681	CLUTCH HOUSING (INCL. 864711, 864712, 869263)	1
865436	SPIRAL RING	1	867683	TORQUE SPRING BEARING	1
867666	DRIVE SHAFT WASHER	1	869263	PIN SLEEVE	1
867668	TRIP PLUNGER	1	869626	TORQUE SPRING	1
867669	TORQUE SPRING PLATE	1			

The complete clutch with housing can be purchased as a sub-assembly using Part No. 861847.

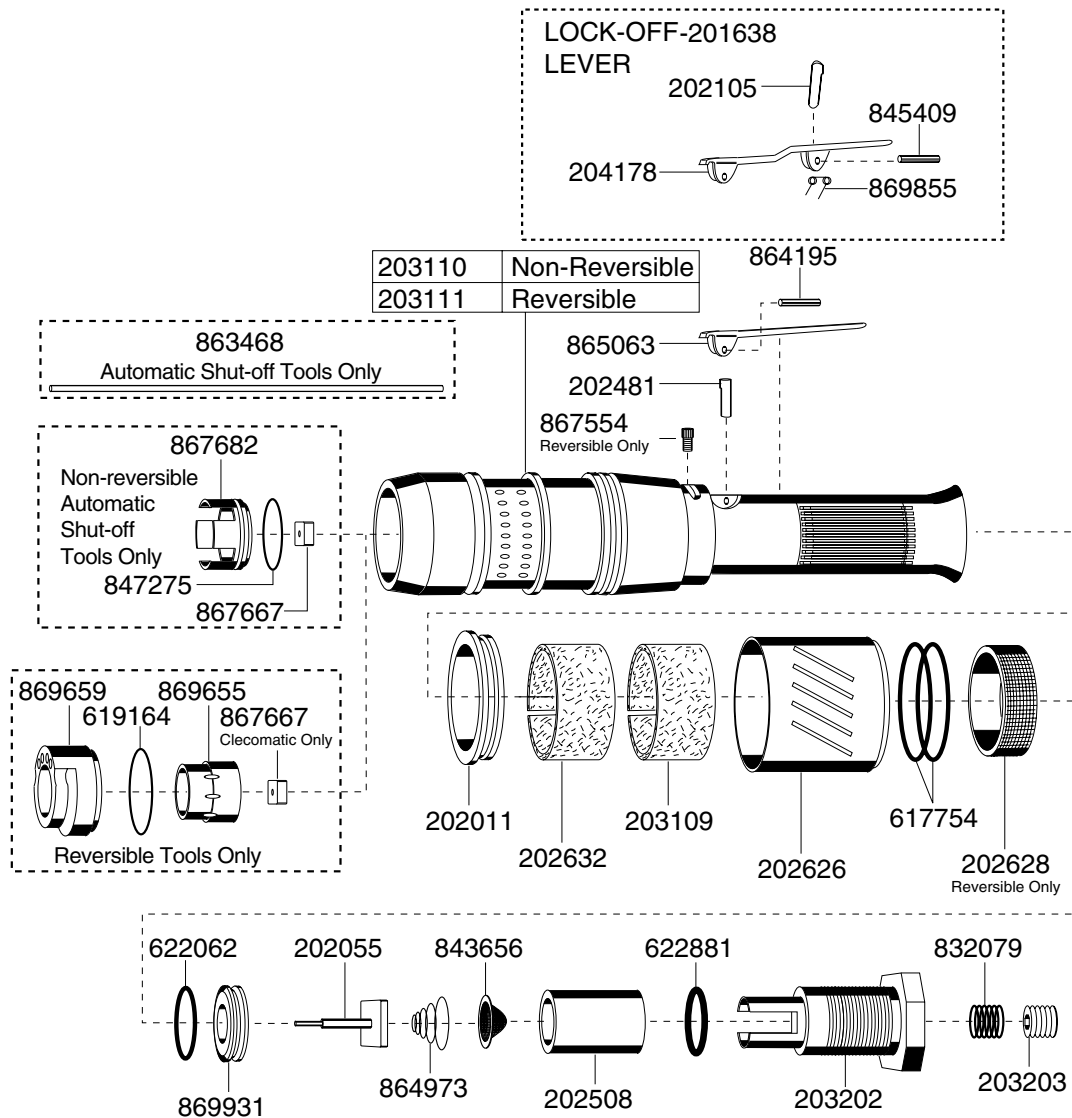
NO. 55NAL-1 & 55NL-1 MOTOR



PARTS LIST — MOTOR

PART NO.	NAME OF PART	QTY.
203100	ROTOR-HEX (NON-REV. AUTOMATIC SHUT-OFF)	1
203101	CYLINDER (NON-REVERSIBLE) - INCL. 8863887	1
203102	ROTOR-7T (NON-REVERSIBLE STALL)	1
203103	CYLINDER (REVERSIBLE) - INCL. 812164	1
203989	BEARING CAP (STALL TOOL ONLY)	1
619377	FRONT ROTOR BEARING	1
812165	REVERSIBLE CYLINDER PIN	1
843444	REAR ROTOR BEARING (NON-REVERSIBLE)	1
847096	REAR ROTOR BEARING (REVERSIBLE)	1
847603	ALIGNMENT PIN (REVERSIBLE)	1
863468	TRIP ROD (AUTOMATIC SHUT-OFF)	1
863887	NON-REVERSIBLE CYLINDER PIN	1
865352	ROTOR LOCK NUT	1
867536	FRONT BEARING PLATE	1
869059	MOTOR SPACER (STALL ONLY)	1
869569	ROTOR BLADE	5
869660	REAR BEARING PLATE (REVERSIBLE)	1
869570	ROTOR-HEX (REVERSIBLE AUTOMATIC SHUT-OFF)	1
869572	REAR BEARING PLATE (NON-REVERSIBLE)	1
869573	ROTOR-7T (REVERSIBLE STALL)	1

NO. 55 NAL-1 & NL-1 HANDLE



PARTS LIST — HANDLE

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
202011	SEAL RING	1	622881	"O"-RING 7/8" X 1-1/8"	1
202055	THROTTLE VALVE	1	832079	SPRING	1
202105	LOCK-OFF LEVER PAWL	1	843656	AIR INLET SCREEN	1
202481	THROTTLE VALVE PIN	1	845409	LOCK-OFF LEVER PAWL RETAINER PIN	1
202508	INLET SPACER	1	847275*	"O"-RING 1-1/16" X 1-3/16"	1
202626	EXHAUST DEFLECTOR	1	863468*	TRIP ROD	1
202628	REVERSING VALVE SLEEVE	1	864195	LEVER PIN	1
202632	MUFFLER	1	864973	THROTTLE VALVE SPRING	1
203109	MUFFLER	1	865063	THROTTLE LEVER	1
203110	MOTOR HOUSING (NON-REV.)	1	867554	REVERSING VALVE SCREW	1
203111	MOTOR HOUSING (REV.)	1	867667*	SHUT-OFF VALVE	1
203202	INLET BUSHING	1	867682*	VALVE BLOCK	1
203203	METERING NUT	1	869655	MOTOR SPACER	1
204178	LOCK-OFF LEVER	1	869659	REVERSING VALVE	1
617754	"O"-RING 2" X 2-1/8"	2	869855	LOCK-OFF LEVER SPRING	1
619164	"O"-RING 1-9/16" X 1-3/4"	1	869931	THROTTLE VALVE SEAT	1
622062	"O"-RING 7/8" X 1-1/16"	1			

* Denotes parts not included in subassemblies listed below.

55NL-1-724

PART NO.	NAME OF PART	QTY.
202011	SEAL RING	1
202055	VALVE, THROTTLE	1
202105	TOGGLE	1
202481	T.V. PIN	1
202508	INLET SPACER	1
202536	SPINDLE BEARING	1
202626	DEFLECTOR, EXHAUST	1
202632	MUFFLER	1
203101	CYLINDER	1
203102	ROTOR	1
203107	IDLER GEAR, 2ND RED.	3
203109	MUFFLER	1
203110	HANDLE	1
203137	SPINDLE	1
203696	GEAR CASE	1
203697	GEAR CASE	1
203698	2ND. RED. SPIDER	1
203699	RETAINING RING	1
203989	BEARING CAP	1
204178	LOCK-OFF LEVER	1
617754	RING, O	2
619377	BEARING, BALL	1
619466	BEARING, BALL	1
622062	RING, O	1
622881	RING, O	1
843444	BEARING, BALL	1
843656	SCREEN	1
845409	PIN, SPRING	1
861485	SPIDER, OPEN	1
864195	PIN, SLOTTED SPRING	1
864671	PIN, DOWEL	3
864973	SPRING	1
865198	BEARING, BALL	1
865352	NUT, LOCK	1
867526	IDLER GEAR 121T)	3
867536	PLATE, FRONT BEARING	1
869059	MOTOR SPACER	1
869569	BLADE, ROTOR	5
869572	PLATE, REAR BEARING	1
869855	TOGGLE SPRING	1
869877	BEARING RETAINER	1
869903	GEAR, IDLER	3
869905	SPIDER, CAGE	1
869907	ROLLER, NEEDLE	39
869908	SHAFT, GEAR	3
869931	THROTTLE VALVE SEAT	1
869933	INLET BUSHING	1
882115	RETAINER RING	1